

MAURITIUS

NATURE – BASED SOLUTIONS TO COPE WITH CLIMATE CHANGE AND COVID-19

Presenter

Farmers in Agriculture, Livestock, Cooperative, Organic Network - F.A.L.C.O.N Association



Description

Indeed, the COVID-19 pandemic coupled with climate change, have amplified the existing pressures on the farming sector. In Mauritius, during the lockdown period, an appalling amount of natural resources were wasted. Due to restricted mobility, farmers were unable to irrigate crops, leading to a considerable loss of vegetables and fruits. Other challenges faced by farmers during the pandemic were:

- Failure of many local planters to use e-commerce for sales. Innovation and adaptation to a novel marketing platform are major challenges.
- Introduction of a sanitisation kit in farming activity is now compulsory (surgical masks, hand sanitisers, temperature recording device). The new routine has led to additional production costs.
- Wearing masks while working on fields and in markets generate discomfort but the farmers have to adapt to the new set rules.
- Poor tourism activity in Mauritius has generated a surplus in the availability of vegetables/fruits, thus leading to low prices of the produce. Farmers are therefore faced with narrow profit margins and even losses (auction markets are refusing additional vegetables from planters).

Abandoned crop fields decomposed rapidly with rising temperatures, thus upscaling the amount of CO₂ gas in the atmosphere. Livestock farms situated far from the farmers' localities led to increased stresses in the livestock, resulting to poor productivity in terms of reduced milk production, high emission of methane and ammonia gases from neglected cow dung and poultry faecal materials respectively as well as potential death of the animals. Additionally, a surplus in the crops harvested after the lockdown was noted, which further exacerbated episodes of food waste. However, the reduced farming activities mitigated, to some extent, air pollution since agricultural machinery was not mobilised. Consequently, the soil did not suffer from mechanical damage, leaving undisturbed the soil biodiversity. Soil erosion scenarios were also reduced. Furthermore, bee activity was enhanced with the absence of pesticide spraying.

In Mauritius, many farmers experienced and are still experiencing

huge losses due to the serious pre-existing burdens of climate change such as prolonged droughts, floods and harmful insects' invasion amongst others. Moreover, the contribution of the local households towards the preservation of the environment is highly scarce. Besides, the pandemic has further accentuated on the urgent need to expand local food production and to configure resilient food systems to curtail the dependency on imported food. The local communities realised the importance of being self-sufficient (producing own food). Food security in Mauritius has been fragilized by both the climate change effects and the pandemic. Being a member of the World Farmers' Organisations (WFO) and representing the farmers in the Republic of Mauritius, FALCON Association has been encouraged to develop the concept of Family Farming (FF) at national level. Following the COVID-19 pandemic, a necessity of Family Farming in Mauritius has been observed. Many locals wanted to do backyard farming but unfortunately lacked the basic skills and know-how for farming.

Needs:

- Educating farmers on e-commerce.
- Introducing medical insurance scheme for planters is necessary since they need to report to work despite the pandemic.
- Training of farmers in adhering to strict hygiene protocols imposed by the government is critical.
- For better ROI, farmers can transform the excess of fruits and vegetables into processed foods, which could be sold for profits.
- Launching of new schemes for planters to alleviate the financial burden and to motivate them for future production.

Best practices implemented to adapt to and/or mitigate climate change effects considering the COVID-19 pandemic impacts include:

- Engaging in Agroecological Farming, including, hydroponic (bioproduction), aquaponic, organic cultivation, organic sheltered farming and Agro photovoltaics.
- Minimising the use of the pesticides and synthetic fertilisers.
- Production and sales of local natural fertilisers (fermented cow

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dung and urine as main ingredients) and herbal pesticides.

- Sensitising local communities on sustainable agriculture, for instance workshops on composting and free distribution of compost bins are being actively initiated with the assistance of FALCON Association.
- Free training on Agroecological practices is provided by FALCON Association in collaboration with National Cooperative College in Mauritius.
- Collection of seeds are being carried out to produce local organic vegetable & fruits that are resistant to the prevailing climatic conditions. The initiative is also adding up to food security.
- Surplus in crop production is transformed into processed food to mitigate food waste.
- Automated irrigation system (drip irrigation system) is being implemented in numerous farms.
- Many locals wanted to do backyard farming but unfortunately

lacked the basic skills and know-how for farming.

- In the context of the aforementioned issues, FALCON is creating a novel concept whereby each inhabitant will collectively join together to safeguard the environment while upscaling the supply of local food. Consequently, the project plan consists of sensitising the locals about the importance of conserving their natural surroundings and to motivate them for their crucial contributions. The introduction of community gardens will be the first step towards the fulfilment of the Agroecological Home project. In fact, each community centre will consist of one Young Farmer club who will be inspired to establish an agroecological community garden. A community garden has already been set up at Morcellement St. Andre by a group of motivated youngsters. Subsequently, the youth will then encourage the village to develop an agroecological home. Beneficiaries will be architects, the locals, and stakeholders in the economic and environmental sector.

Results

The implementation of agroecological practices in farms have benefited both the natural ecosystem and sustained the farmers' financial status. In fact, pesticide free crops are available for local consumers. Coupled with the sale of organic and bio produce, natural fertilisers and herbal pesticides, other income generating practices have been successfully identified with the selling of locally produced electrical energy from photovoltaics, placed on greenhouses. Recycling of livestock manure and other faecal materials have led to a decrease in the emission of greenhouse gases. With longer periods of drought, the irrigation system acts as water saving tool. The trickle system also condenses the pest, weed and disease pressures on farms and it requires minimal human intervention. The project of family farming will entail to independent, income generating households and uplift the local production. Young Farmers project will lead to successful set-up of community gardens by Young Farmers and boosting the households to initiate agroecological practices at home. Other outcomes encompass job openings in the architectural designs for agroecological infrastructure, moulding the future generations to invest fully in the conservation of their natural ecosystems, encouraging food security and for Mauritius to be a role model for other African countries in the engagement on agroecological practices.

Climate smartness

The F.A.L.C.O.N. Association project has mostly implemented practices related to greenhouse gas emissions reduction including decrease of fertilizers use, increase of organic fertilizers use, use of composts, and reduction of waste. Adaptation practices have focused on water resources management such as irrigation systems and hydroponics. All these practices have direct or indirect effects on productivity and family food security, in the short, medium, and long term. All the practices promoted in the project aim at sustainable production, the reduction of emissions, carbon sequestration, and resilience increase of agricultural systems to different climatic events; and for that reason, this project is framed within the focus of Climate-Smart Agriculture (CSA).

In order to be able to have a greater reach, it is recommended to include processes of capacity building to strengthen the manner in which the farmers understand and use the climate information⁹, so that they may make better-informed decisions, considering the specific conditions of the context and the practices available to be implemented.

Likewise, it is recommended to develop strategies for strengthening climate financing mechanisms to accelerate a sustainable transformation of productive systems and be able to have a greater scaling of this initiative in other places.

⁹ It is advisable to use climate information from official institutions. However, in case this information cannot be accessed, it is possible to use global secondary information such as CHIRPS (<https://climateserv.servirglobal.net/>). To transfer agroclimatic information, it is advisable to create spaces such as the Local Technical Agroclimatic Committees (LTACs) (<https://www.sciencedirect.com/science/article/pii/S2212096316300298>) and use methodologies such as PICSA (<https://climateserv.servirglobal.net/>).